

APPENDIX

UNITS CONVERSION FACTORS

TABLE A1 Units of Distance

To convert	To	Multiply by
ft	in	12
ft	m	0.3048
in	ft	1/12
in	mm	25.40
m	ft	3.281
mm	in	0.03937

TABLE A2 Units of Force

To convert	To	Multiply by
k	kN	4.448
k	lb	1000
kg _f	lb	2.205
kg _f	N	9.807
kg _f	metric ton	0.001
kN	k	0.2248
lb	k	0.001
lb	kg _f	0.4536
lb	N	4.448
lb	ton (short)	1/2000
lb	ton (long)	1/2240
N	kg _f	0.1020
N	lb	0.2248
ton (short)	lb	2000
ton (long)	lb	2240
metric ton	kg _f	1000

TABLE A3 Units of Volume

To convert	To	Multiply by
ft ³	gal	7.481
gal	ft ³	0.1337

TABLE A4 Units of Stress and Pressure

To convert	To	Multiply by
Atmosphere	lb/ft ²	2117
Atmosphere	kPa	101.3
bar	kPa	100
kg _f /cm ²	kPa	98.07
kg _f /cm ²	lb/ft ²	2048
kPa	atmosphere	0.009869
kPa	bar	0.01
kPa	kg _f /cm ²	0.0102
kPa	lb/ft ²	20.89
kPa	lb/in ²	0.1450
kPa	metric ton/m ²	0.1020
lb/ft ²	atmosphere	4.725×10^{-4}
lb/ft ²	kPa	0.04787
lb/ft ²	lb/in ²	1/144
lb/in ²	kPa	6.895
lb/in ²	lb/ft ²	144
lb/in ²	MPa	6.895×10^{-3}
metric ton/m ²	kPa	9.807
MPa	lb/in ²	145.0

TABLE A5 Units of Unit Weight

To convert	To	Multiply by
kN/m ³	lb/ft ³	6.366
kN/m ³	metric ton/m ³	0.1020
kN/m ³	Mg _f /m ³	0.1020
lb/ft ³	Mg _f /m ³	0.1020
metric ton/m ³	kN/m ³	9.807
Mg _f /m ³	kN/m ³	9.807